

ROY F. WESTON, INC.

**QUALITY ASSURANCE PROJECT PLAN
AMENDMENT NO. 1, REVISION 2
EVERGREEN MANOR
ROSCOE, ILLINOIS**

WORK ASSIGNMENT NO. 139-RICO-05MZ

**QAPP AND FSP AMENDMENT NO. 1
REVISION 2 - 26 MARCH 2002**



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26 March 2002

Ms. Karen Cibulskis (SR-6J)
Remedial Project Manager
United States Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

U.S. EPA Contract No.: 68-W7-0026
Work Assignment No.: 139-RICO-05MZ
Document Control No.: RFW139-2E-AKVG

Subject: QAPP and FSP Amendment No. 1, Revision 2

Dear Ms. Cibulskis:

Roy F. Weston, Inc. (WESTON®) is pleased to submit the QAPP Amendment No. 1(Revision 2) to the Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP) dated April 2000 {Document Control No: RFW036-2E-AFGO} and all associated versions that were revised subsequently.

Should you have any questions or require additional information, please feel free to contact me at (847) 918-4005.

Very truly yours,

ROY F. WESTON, INC.

Deepak D. Bhojwani
Site Manager

DLB:ld
Enclosures

cc: James M. Burton, P.E. (WESTON)



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Prepared for:

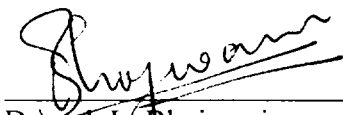
U.S. Environmental Protection Agency
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77 West Jackson Boulevard
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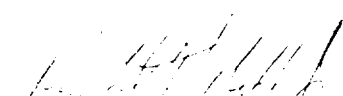
This document was prepared in accordance with U.S. EPA Contract No. 68-W7-0026, WESTON Region V Response Action Contract


**QUALITY ASSURANCE PROJECT PLAN
AMENDMENT NO.1, REVISION 2
EVERGREEN MANOR
ROSCOE, ILLINOIS**

26 March 2002

Prepared By:  Date: 3-26-02
Tonya Balla, WESTON
Project Engineer

Approved By:  Date: 3/26/02
Deepak L. Bhojwani
Site Manager

Approved By:  Date: 3/26/02
James M. Burton, P.E.
Program Manager

Approved By:  Date: 3-28-02
Karen Cibulskis
Remedial Project Manager


Approved By: _____ Date: _____
U.S. EPA Quality Assurance Reviewer

MEMORANDUM

SMF-4J

DATE: March 4, 2002

SUBJECT: Approval of Amendment No. 1 to the Quality Assurance Project Plan (QAPP) for the Fund-Lead Remedial Investigation/Feasibility Study (RI/FS) Activities for Evergreen Manor in Roscoe, Illinois

FROM: Richard L Byvik 
Field Services Section (FSS)

TO: Karen Cibulskis
Remedial Project Manager (RPM)

I recommend approval of Amendment No. 1 to the QAPP for the Fund-Lead RI/FS activities at Evergreen Manor, Roscoe, Illinois. The subject QAPP was received by FSS on February 21, 2002, Log-in #2862. The **Signature** page has been signed and returned with the subject QAPP to the RPM. Please return a copy of the completely signed signature page to FSS.

Attachment

cc: Steve Ostrodka, SMF-4J

QUALITY ASSURANCE PROJECT PLAN
AMENDMENT NO.1
EVERGREEN MANOR
ROSCOE, ILLINOIS

20 February 2002

Prepared By: Tonya Balla
Tonya Balla, WESTON
Project Engineer

Date: 2/20/02

Approved By: Deepak L. Bhojwani
Deepak L. Bhojwani
Site Manager

Date: 2/20/02

Approved By: James M. Burton
James M. Burton, P.E.
Program Manager

Date: 2/20/02

Approved By: _____
Karen Cibulskis
Remedial Project Manager

Date: _____

Approved By: Richard L. Byrnie
U.S. EPA Quality Assurance Reviewer

Date: 3/4/02

QUALITY ASSURANCE PROJECT PLAN

2.3.2 Project Objectives

The objective of the planned field work is to evaluate the current condition of contaminants within groundwater, surface water and sediment at the Evergreen Manor Site. During the Remedial Investigation (RI), a total of 138 groundwater samples (including duplicates) were analyzed. Groundwater samples were collected from 22 residential wells, 15 IEPA shallow and deep wells at eight locations, and 72 groundwater samples from multiple depths at 10 cone penetrometer testing (CPT) locations. Only three chemicals (chloroform, tetrachloroethene (PCE), and trichloroethene (TCE)) were detected slightly above MCLs/IEPA criteria in three wells (one in each well). All other chemical concentrations were detected either below the MCLs/IEPA criteria or below their detection limits. The unacceptable potential future risk calculated for the site is driven by a single detection of chloroform (0.9 ug/L) in a residential well which no longer exists. This detection of chloroform was found near the edge of the plume, as defined by detections and non-detections of VOCs during the RI. Chloroform was not detected in any other samples collected during the RI. If chloroform is not considered, the HI would be under 1. The rationale for using the single detection of chloroform and its concentration in the risk calculation was the fact that chloroform was detected at a concentration significantly above the IEPA criteria (which has since been revised from 0.02 ug/L to 0.2 ug/L). Although chloroform has not been detected on a regular basis at this site, the CERCLA Expanded Site Inspection Report mentions that chloroform was detected by the IEPA; however, quantifiable data is not available. The additional groundwater sampling will be used to evaluate current groundwater conditions prior to selecting the final remedy for the site.

Groundwater samples from new and existing monitoring wells, as well as surface water, and sediment samples will be collected and analyzed for VOCs. Installation and sampling of temporary wells, as planned in the Work Plan, will not be conducted. U.S. EPA re-evaluated the need to conduct the temporary well point sampling and concluded that while having the actual data would

reinforce the notion that groundwater contaminants are not migrating beyond the river, the RI data clearly indicates that the probability for the contaminants to migrate beneath the river is very small. During the RI, the leading edge of the contaminant plume, vertically profiled down to depths of 84 to 102 feet just before reaching the river (CPT-01, CPT-02 and CPT-03), showed no or low levels of contaminants below the cleanup standards. Therefore, even if any contaminants were to migrate to the other side of the river, their concentrations would be either non-detect or below cleanup standards. Also, the type of hydrogeologic regime at the site dictates upward vertical gradients as groundwater discharges to the river.

Existing monitoring wells will be sampled in order to evaluate current groundwater conditions across the site, to facilitate future feasibility of long-term groundwater monitoring and to help evaluate monitored natural attenuation (MNA) as a remedial alternative. Three permanent monitoring wells will be installed and sampled within the limits of the plume. Two of these wells will be installed in the vicinity of the abandoned residential wells where contaminants were detected at concentrations exceeding MCLs or IEPA criteria during the RI. These two wells will facilitate the evaluation of current groundwater conditions near the western margin of the delineated groundwater plume where chloroform was detected and near the center of the plume where TCE was detected at a level slightly over its MCL. It should be noted that the presence of chloroform had resulted in an unacceptable risk. The third monitoring well will be installed near the downgradient edge of the plume in the vicinity of temporary well sampling point CPT-01. Samples from CPT-01, collected during the RI, were found to contain contaminants at concentrations slightly below MCLs/IEPA criteria.

The surface water and sediment samples will be collected from the Rock River from locations that are within, upstream, and downstream of the presumed discharge area of the contaminant plume.

To date, only one surface water and sediment sample has been collected from the area where groundwater is presumed to discharge in the Rock River. This lack of surface water and sediment data clearly represents a data gap. The proposed surface water and sediment sampling will bridge this potential data gap and confirm previous sampling results.

All samples will be analyzed for the U.S. EPA Target Compound List (TCL) of VOCs. The groundwater and surface water VOCs will be analyzed by the Superfund Low Concentration method through the Contract Laboratory Program (CLP). The sediment samples will be analyzed by the Contract Laboratory Program (CLP) SOW for Multi-Media Multi-Concentration Organics. QC samples including field blanks, field duplicates, and trip blanks will also be collected. No mobile laboratory or SAS laboratories will be required.

2.6 Parameters to be tested and frequency

Table 2-1a (attached) presents the sample matrix, analytical parameters, and sampling frequency associated with the groundwater, surface water, and sediment samples.

2.8 Project Schedule

A revised project schedule covering the additional sampling round and preparation of the feasibility study for the site is shown in Figure 2-1a.

3.1 PROJECT MANAGEMENT

U.S. EPA Remedial Project Manager/Work Assignment Manager - Ms. Karen Cibulskis is the U.S. EPA RPM/WAM for this project. Ms. Cibulskis has the overall responsibility for all phases of the Evergreen Manor project.

WESTON Program Manager - Mr. James Burton, P.E. is the WESTON Program Manager.

WESTON Site Manager - Mr. Deepak Bhojwani is the WESTON Site Manager.

3.2.2 Validation of Analytical Data

Data validation of CLP data including tentatively identified compounds will be conducted by U.S. EPA Region V Field Services Section (FSS). WESTON will also conduct a systematic review of the data for compliance with established QC criteria.

3.4 LABORATORY OPERATIONS

Groundwater, surface water, and sediment samples will be analyzed for VOCs utilizing the CLP.

4.1 ACCURACY, PRECISION, AND SENSITIVITY ANALYSIS

The project required detection limits are presented in Table 4-2a (attached).

6.2 FIELD CHAIN-OF CUSTODY PROCEDURES

WESTON will either complete the standard organic traffic report & chain of custody (COC) record or complete a COC using the FORMS II Lite Software.

7.1 FIELD INSTRUMENTS/EQUIPMENT

Field instruments to be used during the Evergreen Manor site field investigation may include the following:

- pH meter
- Thermometer or temperature meter
- Conductivity meter
- Turbidity meter
- Dissolved oxygen meter
- ORP meter
- Water level indicator/electronic sounding device
- Submersible pump or bladder pump

8.1 OFF-SITE LABORATORY ANALYTICAL SERVICES

All VOC samples (groundwater, surface water, and sediment) collected during the additional RI/FS sampling event will be analyzed by a U.S. EPA CLP laboratory. Groundwater and surface water samples will be analyzed by the CLP SOW for Low Concentration Organic Analysis, OLC03.2. Sediment/soil samples will be analyzed by the CLP SOW for Multi-Media, Multi-Concentration Organics Analysis, OLM04.2.

11.2 Laboratory Audits

Audits of CLP laboratories are the responsibility of U.S. EPA Region V.

FIELD SAMPLING PLAN

SECTION 2 - SAMPLE NETWORK DESIGN AND RATIONALE

Table 2-1a presents a summary of the additional sampling efforts for the Evergreen Manor Site.

2.2.1 Geologic Characterization

The geology underlying the Evergreen Manor Site will be further characterized at the permanent monitoring well installation locations using lead screen augering methods. Characterization will be required to a maximum depth of about 80 feet bgs. In general, the geology of the area consists of sand and gravel outwash, with infrequent lenses of fine grained material, deposited in a buried valley. Although fairly homogeneous, the subsurface will be characterized in order to determine appropriate groundwater sampling intervals (i.e., not screen across a fine grained deposit). Characterization will be accomplished by collecting split spoon samples on a regular basis. The expectation is to collect a 2-foot split spoon every 5 feet. Because of the fairly homogeneous nature of the sand and gravel, as well as the anticipated time required to clear the augers of heaving sand, continuous sampling will not be conducted. The soils returned in the split spoons will be logged by a WESTON geologist as described in the QAPP. The permanent monitoring wells are proposed to be located along roadways in the city right-of-way in a residential neighborhood, within the footprint

of the delineated groundwater plume.

2.2.3 Sediment Sampling

In order to confirm the results of previous sampling and bridge the existing data gap, a total of eight sediment samples will be collected from the Rock River from locations that are within, upstream, and downstream of the presumed discharge area of the contaminant plume. The eight locations will be spaced at approximately 300 foot intervals, as shown on Figure 2-2a. Sediment samples will be collected in areas where sediments are readily deposited and within approximately 5 feet of the shore. In the instance where sediments are not present at the predetermined locations (e.g., where sediment is gravel-dominated), the sediment sampling location will be offset by the smallest distance possible, based on field conditions. The sequence of sampling will be from downstream to upstream. To the extent possible, sediment samples will be collected at the same locations as surface water samples and analyzed for VOCs in accordance with methods prescribed in the QAPP and the FSP. The proposed sediment sampling locations are shown in Figure 2-2a.

2.3.3 Monitoring Well Installation

In order to facilitate comparison of existing groundwater conditions with the RI data, and to facilitate long-term groundwater monitoring, three permanent monitoring wells will be installed at locations shown on Figure 2-2a. One of the wells (MW-1) is proposed to be located in the vicinity of 11990 Blue Spruce Drive, where a detection of TCE exceeded the MCL/IEPA criteria. Based on information in the HRS Package, the residential well at 11990 Blue Spruce Drive is screened approximately 50 to 60 feet bgs. Consequently, the proposed well MW-1 will be screened from 55 to 60 feet bgs.

A second monitoring well (MW-2) will be installed near 11943 Wagon Lane, where a detection of chloroform exceeded MCLs/IEPA criteria. The exact screened depth interval from this former residential well is unknown, however, most of the residential wells in the area are, or were, screened between 60 and 80 ft bgs. Therefore, MW-2 will be screened from 65 to 70 feet bgs.

The third proposed permanent monitoring well location (MW-3) is near the CPT-01 location in the center of the plume. There are two reasons for proposing MW-3 at this location. First, this location is downgradient of all other previous and proposed groundwater sampling points. Second, TCE was detected at this location at depths from 29 to 99 feet bgs, at concentrations ranging from 2 to 4 ug/l. Samples collected from CPT-01 at depths of 69 and 79 feet bgs, resulted in detections of TCE at 4 ug/l. This is the most apparent zone of contamination and the basis for choosing a screen interval for MW-3. Proposed well MW-3 will be screened from 70 to 75 feet bgs.

Monitoring wells will be installed in accordance with Section 3.3.3 of the FSP. One deviation from this section is that 5 foot screens (instead of 10 foot) will be installed. All monitoring wells are likely to be installed in the ROW along roadways, and therefore will be completed with a concrete pad and a flush-mount protective cover. All disturbed areas within the limits of work will be restored to original conditions.

The monitoring wells will be developed as stated in Section 3.3.3 of the FSP. In general, this includes surging and purging each monitoring well for a minimum of 30 minutes. Development will occur no sooner than 24 hours after the well is completed. All development water will be collected in 55 gallon drums and handled in accordance with the QAPP and FSP.

A surveyor will be used in order to obtain both vertical and horizontal control of the new monitoring wells. Vertical elevation will be provided in reference to mean sea level, and horizontal coordinates will be provided in State Plane Coordinates.

2.3.4 Monitoring and Residential Well Sampling

A total of 11 monitoring wells (3 new and 8 existing) and 2 municipal wells will be sampled. The existing monitoring wells, a subset of 24 existing monitoring wells, include G101D, G101S, G103D, G103S, G104D, G104S, G105D, G105S, G107S, G107D, G109S and G109D. The

rationale for sampling or not sampling each existing well is given below:

- Well No. G101S - This well is nested with Well No. G101D in which TCE was detected. This shallow well also happens to be near the edge of the delineated groundwater plume. The primary reason for sampling this well is to determine if there is any change in the vertical profile of contaminant concentration.
- Well No. G101D - This well is nested with Well No. G101S. This a deep well near the edge of the delineated groundwater plume. During the RI, TCE was detected in this well at concentrations below the MCLs. The primary reason for sampling this well is to determine if there is any change in the previously delineated groundwater plume.
- Well No. G103S - This well is located near the former source areas and within the delineated groundwater plume. Previous RI results indicate that PCE was detected in this well at concentration above its MCL. This well will be sampled to determine if there has been any change in the contaminant concentration.
- Well No. G103D - This well is nested with Well No. G103S. During the RI, 1,1,1-TCA and TCE were detected at concentrations below their MCLs. This well will be sampled to evaluate any change in the contaminant concentrations.
- Well No. G104S - This is a downgradient well near the edge of the delineated groundwater plume. RI results indicated that a number of contaminants were detected at concentrations below the MCLs. The reason for sampling this well is to determine if there is any change in the previously delineated groundwater plume.
- Well No. G104D - This well will be sampled for the reasons cited above for Well No. G104S.
- Well No. G105S - This is a downgradient well near the center of the delineated groundwater plume. RI results indicated that a number of contaminants were detected at concentrations well below the MCLs. The reason for sampling this well is to determine whether any change in the contaminant concentration has occurred since the RI.
- Well No. G105D - This well will be sampled for the reasons cited above for Well

No. G105S.

- Well No 107S - This well is nested with well No. 107D which had PCE concentrations at 15 ppb in 1994 and 11 ppb in 1995. Contaminants were also detected in this well at concentrations below the MCLs. The primary reason for sampling this well is to determine if there is any change in the vertical profile of contaminant concentrations.
- Well No. 107D - This deep well will be sampled to determine if there is any change in the contaminant concentration.
- Well No. 109S - This well is nested with well No. 109D and is located in the center of the groundwater plume close to the source areas. Analytical results of samples collected from this well in 1995 indicate that TCE was present at 6 ppb. This well will be sampled to determine if there is any change in the contaminant concentration.
- Well No. 109D - This well will be sampled for reasons similar to those cited for well No. 109S.
- The remaining existing monitoring wells including G102S, G102D, G106S, G106D, G108S, G108D, G110S, G110D, G111, G112, G113, and G114 will not be sampled for one or more following reasons: the well is located outside of the contaminant plume, results from the RI indicated that contaminants were not detected in the well, the well has been destroyed, the well is located between a source area (s) and other downgradient wells, and/or the well is in close proximity to a well which is proposed to be sampled.

Sampling of the new monitoring wells MW-1, MW-2, and MW-3 will occur at least 48 hours after well development. A low-flow purging method will be used in order to obtain representative samples. As stated in the EPA guidance *Groundwater Issue: Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures*, a submersible electric pump (such as a Grundfos pump), is an acceptable choice for low-flow pumping. A bladder pump will be considered as a backup to the submersible pump. Some of the shallow monitoring wells may be screened across the water table, in which case the pump intake will be located near the top of the water column. The pump intake will be located between the middle and top of the well screen in all of the deep wells. Wells will

be purged at a rate between 100 and 500 ml/min. Under no circumstances will a bailer be used to purge a monitoring well.

Groundwater parameter readings, as well as depth to water, will be measured every 5 to 10 minutes. In the event that water elevation drops in excess of 2 feet, the flow rate will be decreased to minimize drawdown. Groundwater samples will be collected when groundwater parameter measurements have stabilized. Stabilization will be considered achieved when three consecutive readings of the following parameters, within the following tolerances, have been measured:

- pH - +/- 0.1 standard pH units.
- Specific conductivity - +/- 3%.
- Oxygen reduction potential - +/- 10 mV.
- Turbidity - 10% for values greater than 5 NTU; or any reading below 5 NTU.
- Dissolved oxygen - 10%.

In addition to the above parameters, temperature will be recorded but not used to assess stability. In the event that stable conditions are not achieved within 3 hours of purging a well at low flow rates, the field team leader may determine whether it is appropriate to sample or continue monitoring parameters. All of the monitoring well samples will be handled in accordance with the QAPP and FSP, and will be analyzed for VOCs.

In addition to sampling of monitoring wells, two municipal wells supplying potable water to the City of Roscoe will be sampled. Samples will be collected from sampling ports used by the North Park Water District. Sampling protocols will be similar to those used by the North Park Water District. These sampling protocols, however, will be reviewed and updated (if necessary) prior to using them in the field.

2.4.1 Surface Water Sampling

A total of eight surface water samples will be collected from the Rock River. These locations, shown on Figure 2-2a, coincide with the sediment sampling locations. The surface water samples

will be collected from the shore of the Rock River, from a zone immediately above (approximately 1 - 2 inches) the sediment/water interface. A peristaltic pump will be used to pump the surface water into the sample vials by attaching tubing to a rod (6 to 10 feet long) and submerging the end of the rod to within 1-2 inches above the sediment/water interface. Care will be taken not to stir up sediment. As an alternative method, a long-handled sampler may be used as discussed in the FSP. A bailer will not be used as a sampling tool. All surface water samples will be handled in accordance with the QAPP and FSP, and will be analyzed for VOCs.

Following surface water sampling, one location will be chosen for surface water elevation measurement. A staff gauge will be driven into the river bed and the distance from its top to the water surface will be measured. A licensed surveyor will be used to survey the top of the staff gauge.

2.6 WASTE DISPOSAL

Investigation derived waste, such as soil cutting and purge water, generated during the investigation would be stored either in 55-gallon DOT approved drums or in a portable storage tank. One composite water sample of the purge/development/decon water and one composite soil sample of the soil cuttings will be collected and analyzed for VOCs. See section 9 of the FSP for specific procedures for management of investigative derived waste.

3.2 Decontamination Procedures

The working end of the drill rig and all downhole and associated drilling equipment, tools, and materials will be decontaminated prior to drilling each new well location. Only decontaminated equipment will be placed in a well. All drilling related equipment will be decontaminated in accordance with the protocols presented in Table 3-2 of the FSP.

3.3.3 Monitoring Well Installation

The proposed number and location of monitoring wells and the rationale for monitoring well installation was discussed in Subsection 2.3.3. Each well will be screened entirely in the sand and

gravel aquifer. A depth of 80 feet bgs is anticipated. The wells will be developed in accordance with the QAPP and FSP

5.1 Project Sample Numbering System

Some examples of the WESTON project sample numbering system are as follows:

- EM2-G103S-01: Evergreen Manor site, phase 2, groundwater sample, first sample collected at this location
- EM2-GTB01-01: Evergreen Manor site, phase 2, groundwater sample, first trip blank sample
- EM2-SD01-01MSD: Evergreen Manor site, phase 2, sediment sample, matrix spike/matrix spike duplicate location

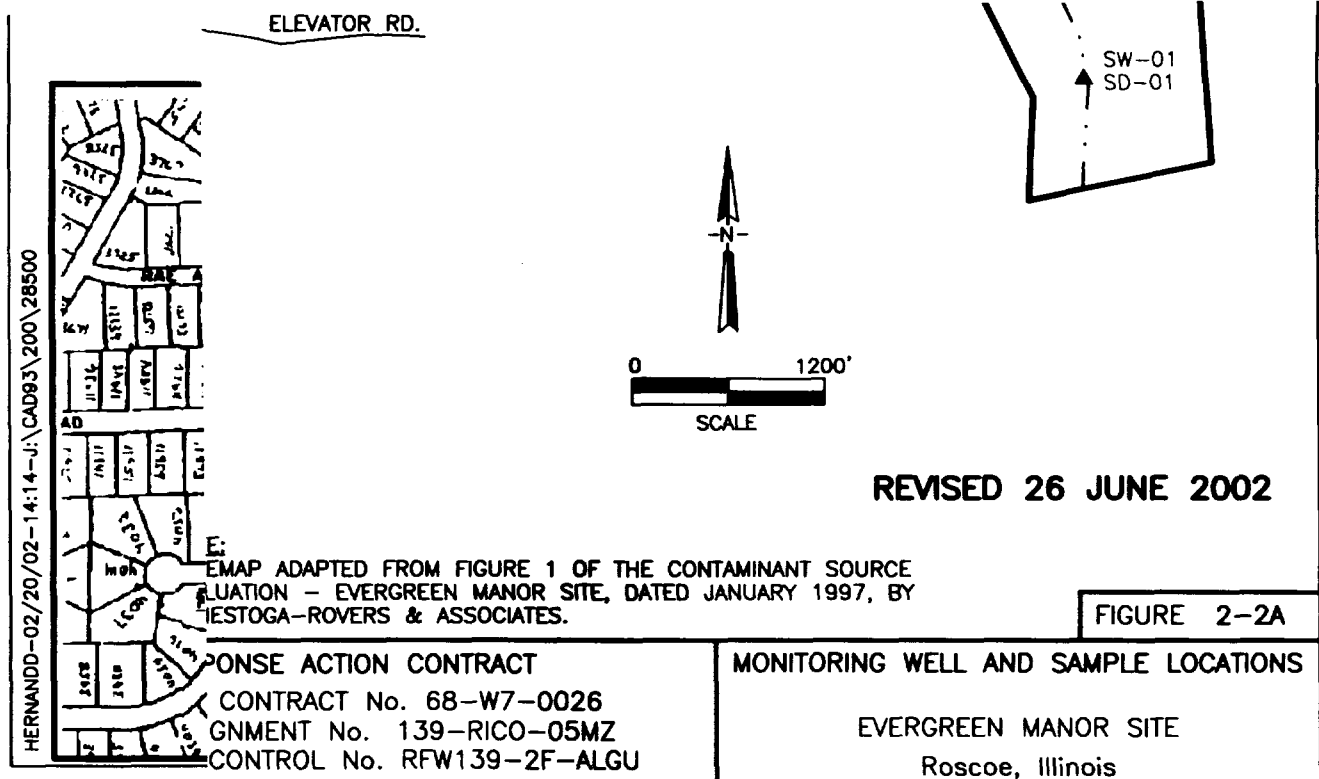
6.3 Sample Documentation Forms

Chain-of-Custody/SAS Packing List Forms

Combination COC/TR or Forms II Lite software will be used for the samples.

7.1 Sample Containers and Sample Preservation

Table 7-1a lists the required sample containers, sample volumes, sample preservation requirements, and holding times associated with the CPT, monitoring well, surface water, and sediment samples.



TABLES

Table 2-1a
Summary of Sampling and Analysis Program
Evergreen Manor
Roscoe, Illinois

Sample Matrix	Field Parameters	Laboratory Parameters	Investigative			Field Duplicate			Field Blank			MS/MSD			Matrix Total
			No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	
Monitoring and Municipal Wells (new and existing)	conductivity, temperature, pH, ORP, turbidity, dissolved oxygen	Volatile Organics	17	1	17	3	1	3	2	1	2	2	1	2	22
Surface Water	conductivity, temperature, pH	Volatile Organics	8	1	8	1	1	1	1	1	1	1	1	1	10
Sediment	PID	Volatile Organics	8	1	8	1	1	1	NA	NA	NA	1	1	1	9
Investigative Derived Waste	NA	Volatile Organics	2	1	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	2

Notes:

1. If the sampling schedule permits, monitoring well samples, municipal well samples and surface water samples will have combined QC samples. Field duplicate and field blank samples will be collected on a 1 per 10 frequency. MS/MSDs will be collected on a 1 per 20 basis.
2. Trip blanks will be included with every shipment of aqueous VOC samples. The matrix total does not include trip blanks or MS/MSDs.
3. One IDW sample will be a composite water sample of development/purge/decontamination water. One IDW sample will be a composite sample of soil cuttings from drilling.

Table 4-2a
Project Required Detection Limits
Contract Laboratory Program
Evergreen Manor
Roscoe, Illinois

Parameter	Soil ug/kg	Water ug/L
Volatile Organic Compounds		
Chloromethane	10	0.5
Bromomethane	10	0.5
Vinyl Chloride	10	0.5
Chloroethane	10	0.5
Methylene chloride	10	0.5
Acetone	10	5
Carbon disulfide	10	0.5
1,1-Dichloroethene	10	0.5
1,2-Dichloroethane	10	0.5
cis-1,2-Dichloroethene	10	0.5
trans-1,2-dichloroethene	10	0.5
Chloroform	10	0.5
1,1-Dichloroethane	10	0.5
2-Butanone	10	5
Bromochloromethane	---	0.5
Bromodichloromethane	10	0.5
1,1,1-Trichloroethane	10	0.5
Carbon tetrachloride	10	0.5
Dichlorodifluoromethane	10	0.5
1,2-Dichloropropane	10	0.5
cis-1,3,-Dichloropropene	10	0.5
Trichloroethene	10	0.5
Dibromochloromethane	10	0.5
1,1,2-Trichloroethane	10	0.5
Benzene	10	0.5
trans-1,3-Dichloropropene	10	0.5

Table 4-2a
Project Required Detection Limits
Contract Laboratory Program
Evergreen Manor
Roscoe, Illinois
(Continued)

Parameter	Soil ug/kg	Water ug/L
Bromoform	10	0.5
Trichlorofluoromethane	10	0.5
1,1,2-Trichloro-1,2,2,2-trifluoromethane	10	0.5
Methyl acetate	10	0.5
Methyl tert-Butyl Ether	10	0.5
Cyclohexane	10	0.5
Methycyclohexane	10	0.5
4-Methyl-2-pentanone	10	5
2-Hexanone	10	5
Tetrachloroethene	10	0.5
1,1,2,2-Tetrachloroethane	10	0.5
1,2-Dibromoethane	10	0.5
Toluene	10	0.5
Chlorobenzene	10	0.5
Ethylbenzene	10	0.5
Styrene	10	0.5
Xylene (total)	10	0.5
1,3-Dichlorobenzene	10	0.5
1,4-Dichlorobenzene	10	0.5
1,2-Dichlorobenzene	10	0.5
Isopropylbenzene	10	0.5
1,2-Dibromo-3-chloropropane	10	0.5
1,2,4-Trichlorobenzene	10	0.5
1,2,3-Trichlorobenzene	---	0.5

--- Compound not reported for this method.

Table 7-1a
Sample Container, Volume, and Preservation Requirements
Evergreen Manor
Roscoe, Illinois

Matrix Type	Analysis	Sample Concentration Level	No. of Bottles	Type of Bottles	Preservatives	Technical Holding Time*
Groundwater - (Monitoring Well, Surface Water, and IDW [aqueous])	Volatiles	Low	3	40-ml. glass vials	Cool, 4°C 4 drops 1:1 HCl to pH <2	14 days
Sediment and IDW (Soil)	Volatiles	Low	3	Encore samplers per sample	Cool, 4°C, lab to preserve.	48 hours for preservation. 14 days analysis

* All holding times are from the date of sample collection.

Note: Aqueous MS/MSD samples and sediment samples will require triple the normal volume for volatile organics. One trip blank will accompany each aqueous VOA shipment container. Trip blanks accompanying water samples will be collected in two 40-ml. glass vials. No trip blank will be sent for soil samples. Additional sediment volume will be collected and sent for percent moisture.

One composite water sample of IDW will be collected and analyzed. One composite soil sample of soil cuttings IDW will be collected and analyzed.

FIGURES

